Contents

Number 1 July 1991

1 EDITORIAL

3 MINI-REVIEW
Cell lineage and its consequences in higher plants. *R. Kelly Dawe and Michael Freeling*

9 MINI-REVIEW
Chaperone function: cracking the second half of the genetic code. *R. John Ellis*

15 **Organ-dependent regulation of a plant promoter isolated from rice by 'promoter-trapping' in tobacco.** *B. Claes, J. Smalle, R. Dekeyser, M. Van Montagu and A. Caplan*

27 **Leghaemoglobin gene transcription is triggered in a single cell layer in the indeterminate nitrogen-fixing root nodule of alfalfa.** *Françoise de Billy, David George Barker, Philippe Gallusci and Georges Truchet*

37 **Control of anthocyanin biosynthesis in flowers of *Antirrhinum majus*.** *Cathie Martin, Andy Prescott, Steve Mackay, Jeremy Bartlett and Eli Vrijlandt*

51 **The impact of decreased Rubisco on photosynthesis, growth, allocation and storage in tobacco plants which have been transformed with antisense rbcS.** *W.P. Quick, U. Schurr, K. Fichtner, E.-D. Schulze, S.R. Rodermel, L. Bogorad and M. Stitt*

59 **Pigmentation mutants produced by transposon mutagenesis in *Antirrhinum majus*.** *Da Luo, Enrico S. Coen, Sandra Doyle and Rosemary Carpenter*

71 **T-DNA insertion mutagenesis in *Arabidopsis*: mutational spectrum.** *Kenneth A. Feldmann*

83 **Perception of the auxin signal at the plasma membrane of tobacco mesophyll protoplasts.** *Hélène Barbier-Brygoo, Geneviève Ephritikhine, Dieter Klämbt, Christophe Maurel, Klaus Palme, Jeff Schell and Jean Guern*

95 **Transgenic tobacco plants expressing yeast-derived invertase in either the cytosol, vacuole or apoplast: a powerful tool for studying sucrose metabolism and sink/source interactions.** *Uwe Sonnewald, Monika Brauer, Antje von Schaewen, Mark Stitt and Lothar Willmitzer*

107 **Co-regulated expression of nitrate and nitrite reductases.** *Jean-Denis Faure, Michel Vincentz, Jocelyne Kronenberger and Michel Caboche*

115 **Expression of photosynthesis gene–promoter fusions in leaf epidermal cells of transgenic tobacco plants.** *Paul Dupree, Keng-Hock Pwee and John C. Gray*

121 **Evidence for a plasma membrane proton pump in phloem cells of higher plants.** *Natalie D. DeWitt, Jeffrey F. Harper and Michael R. Sussman*

Number 2 September 1991

129 MINI-REVIEW
Cycling plant cells. *John H. Doonan*

133 MINI-REVIEW
Phytochrome mutants. *Richard E. Kendrick and Akira Nagatani*

141 **Identification of a novel S-phase-specific gene during the cell cycle in synchronous cultures of *Catharanthus roseus* cells.** *Masaki Ito, Hiroaki Kodama and Atsushi Komamine*

149 **Characterization of the protein import apparatus in isolated outer envelopes of chloroplasts.** *Karin Waegemann and Jürgen Soll*

159 **Localization of tandemly repeated DNA sequences in *Arabidopsis thaliana*.** *J. Maluszynska and J.S. Heslop-Harrison*

167 **Molecular characterization of an *Arabidopsis thaliana* cDNA encoding a small GTP-binding protein, Rha1.** *S. Anuntalabhochai, N. Terryn, M. Van Montagu and D. Inzé*

175 **Comparative localization of three classes of cell wall proteins.** *Zheng-Hua Ye, Yan-Ru Song, Abraham Marcus and Joseph E. Varner*

185 **Mitochondrial genome organization and expression associated with cytoplasmic male sterility in sunflower *(Helianthus annuus).*** *H.K. Laver, S.J. Reynolds, F. Moneger and C.J. Leaver*

195 **Simulations of the static and dynamic molecular conformations of xyloglucan. The role of the fucosylated sidechain in surface-specific sidechain folding.** *Samuel Levy, William S. York, Rainer Stuike-Prill, Bernd Meyer and L. Andrew Staehelin*

217 **Oligogalacturonides are able to induce flowers to form on tobacco explants.** *Victòria Marfà, David J. Gollin, Stefan Eberhard, Debra Mohnen, Alan Darvill and Peter Albersheim*

227 **Transcriptional repression of light-induced flavonoid synthesis by elicitor treatment of cultured parsley cells.** *Edmundo Lozoya, Annette Block, Rodrigo Lois, Klaus Hahlbrock and Dierk Scheel*

235 **A promoter sequence involved in cell-specific expression of the pea glutamine synthetase *GS3A* gene in organs of transgenic tobacco and alfalfa.** *Timothy Brears, Elsbeth L. Walker and Gloria M. Coruzzi*

245 ***Arabidopsis thaliana* as a new model host for plant-parasitic nematodes.** *Peter C. Sijmons, Florian M.W. Grundler, Nicola von Mende, Paul R. Burrows and Urs Wyss*

255 **The MADS box gene family in tomato: temporal expression during floral development, conserved secondary structures and homology with homeotic genes from *Antirrhinum* and *Arabidopsis*.** *L. Pnueli, M. Abu-Abeid, D. Zamir, W. Nacken, Zs. Schwarz-Sommer and E. Lifschitz*

267 TECHNICAL REPORT
Constitutive nitrate reductase: a dominant conditional marker for plant genetics. *Laurent Nussaume, Michel Vincentz and Michel Caboche*

Number 3 November 1991

275 MINI-REVIEW
A gene network controlling glutamine and asparagine biosynthesis in plants. *Robert B. McGrath and Gloria M. Coruzzi*

281 MINI-REVIEW
T-DNA as a gene tag. *Richard Walden, Hiroaki Hayashi and Jeff Schell*

289 **Identification and molecular mapping of a single *Arabidopsis thaliana* locus determining resistance to a phytopathogenic *Pseudomonas syringae* isolate.** *Thomas Debener, Hiltrud Lehnackers, Martin Arnold and Jeffery L. Dangl*

303 **Isolation and molecular characterization of *PosF21*, an *Arabidopsis thaliana* gene which shows characteristics of a b-Zip class transcription factor.** *Roger A. Aeschbacher, Martin Schrott, Ingo Potrykus and Michael W. Saul*

317 **Developmentally regulated epitopes of cell surface arabinogalactan proteins and their relation to root tissue pattern formation.** *J.P. Knox, P.J. Linstead, J. Peart, C. Cooper and K. Roberts*

327 **Characterization of the auxin-regulated *par* gene from tobacco mesophyll protoplasts.** *Yohsuke Takahashi, Makoto Kusaba, Yoshiki Hiraoka and Toshiyuki Nagata*

333 **Membrane responses induced by oligogalacturonides in suspension-cultured tobacco cells.** *Yves Mathieu, Armen Kurkdjian, Hua Xia, Jean Guern, Alan Koller, Mark D. Spiro, Malcolm O'Neill, Peter Albersheim and Alan Darvill*

345 **Negative and positive regulation of a novel proline-rich protein mRNA by fungal elicitor and wounding.** *Jinsong Sheng, Renato D'Ovidio and Mona C. Mehdy*

355 SHORT COMMUNICATION
Novel carbohydrate metabolism in the resurrection plant *Craterostigma plantagineum*. *Giorgio Bianchi, Anna Gamba, Carla Murelli, Francesco Salamini and Dorothea Bartels*

361 SHORT COMMUNICATION
The carboxy-terminal end of glycolate oxidase directs a foreign protein into tobacco leaf peroxisomes. *Micha Volokita*

367 TECHNICAL REPORT
Identification and map position of YAC clones comprising one-third of the *Arabidopsis* genome. *Inhwan Hwang, Takayuki Kohchi, Brian M. Hauge and Howard M. Goodman; Renate Schmidt, Gerda Cnops and Caroline Dean; Sue Gibson, Koh Iba, Bertrand Lemieux, Vincent Arondel, Linda Danhoff and Chris Somerville*

375 **Author index**

377 **Subject index**